

# MONTHLY NOTICES

OF THE

## ROYAL ASTRONOMICAL SOCIETY.

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No. 8.

WILLIAM LASSELL, Esq., President, in the Chair.

John Dickinson, Esq., 11 Upper Grosvenor Street, and  
Capt. David Smith, Warkworth Terrace, Commercial Road,  
were balloted for and duly elected Fellows of the Society.

*On the Orbit of  $\alpha$  Centauri.* By E. B. Powell, Esq.

In the notes to my Second Catalogue of Binary Stars published in vol. xxii. of the Society's *Memoirs*, I gave a revised orbit for  $\alpha$  Centauri, representing the results of observations up to 1862.3; and in a communication dated March 9, 1864, and published in the *Monthly Notice* for May of that year, I invited attention to the important part of the orbit about to be described, viz., the extremity of the perspective ellipse corresponding to the lesser maximum of distance. I have now to state that the comparison has, so to speak, doubled the above extremity, and that consequently the orbit can be determined very approximately. Hitherto it was impossible, as the lamented Captain Jacobs remarked, to say how far the apparent ellipse extended in a northerly direction, and correspondence between observation and calculation did not suffice to establish the correctness of a set of elements. Now, however, though even four or five additional years will enable us to improve the orbit, especially as to the time of periastral passage, the results I have arrived at undoubtedly approximate *pretty closely* to the truth. These results are as follows:—

Mr. Powell, on the Orbit of  $\alpha$  Centauri.

Perspective Orbit.

Semi-axis major .. ..	17"
Semi-axis minor .. ..	2".8
Greater maximum distance .. ..	23".8
Position angle for ditto .. ..	210° 40'
Lesser maximum distance .. ..	10".4
Position angle for ditto .. ..	18° 45'
Greater minimum distance .. ..	3".98
Position angle for ditto .. ..	301° 45'
Lesser minimum distance .. ..	1".16
Position angle for ditto .. ..	115° 30'

Real Orbit.

$\pi$	38° 40'
$e$	.63944
$\Omega$	24° 18'
$\gamma$	81° 13'
$a$	20".13
P	76.25 years
$\tau$	1874.2

Without going into the details of my late observations, which will find place in a paper I shall do myself the pleasure of laying before the Society hereafter, I may mention that the position of  $\alpha$  Centauri in the beginning of the year was as given below :—

Angle.	Distance.	Epoch.
20° 27'	10".24	1870.1

The angle is the mean of 100 observations on thirteen nights; the distance, that of 162 observations on twelve nights. I feel great confidence in both measures.

I have to remark that, in the earlier orbits of  $\alpha$  Centauri calculated by me, I was misled by a belief that Feuillée's observation was taken after periastral passage. Of late years it has become evident that the observation was taken before that passage. If the above mathematician's record can be fully relied on, as I imagine to be the case, it at once limits the periodic time to something less than 76.6 years. Feuillée remarks that, when he observed the star at Lima on July 4, 1709, the companion was west of the primary; but, about 1862.7, the companion crossed the meridian passing through the primary; consequently 1862.7–1709.5, or 2 (76.6) years, must be somewhat more than twice the period of  $\alpha$  Centauri.

Madras,  
April 20th, 1870.